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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/724,666

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EXAMINER

FILE, ERIN M

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

07/06/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

5

<b>Office Action Summary</b>	Application No. 10/724,666	Applicant(s) SUH ET AL.	
	Examiner Erin M. File	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 7, 10, 13 and 16 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 5, 6, 8, 9, 11, 12, 14, 15, 17 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Response to Arguments***

1. Applicant's arguments, see Remarks, filed 4/19/2007, with respect to the 35 U.S.C. 101 Rejection of Claims 1-18 have been fully considered and are persuasive. The 35 U.S.C. 101 Rejection of Claims 1-18 has been withdrawn.

2. Applicant's arguments filed 4/19/2007 have been fully considered but they are not persuasive with regards to the 35 U.S.C. 103 Rejection of Claims 1, 4, 7, 10, 13, and 16.

3. The applicant contends:

The Examiner relies on lines 6-8 of the abstract of Schmidl for satisfying the first preamble sequence recited in Claims 1 and 10. In these lines of the abstract, Schmidl only describes how a first OFDM training symbol has only even-numbered sub-carriers, and no odd-numbered sub-carriers. Nowhere in these lines does Schmidl suggest that odd data from among a first preamble sequence corresponds to null data and even data from among a first preamble sequence corresponds to data at all. The Examiner relies on lines 9-12 of the abstract of Schmidl for satisfying the second preamble sequence recited in Claims 1 and 10. In these lines of the abstract, Schmidl only describes how a second OFDM training symbol has even-numbered sub-carriers differentially modulated relative to those of the first OFDM training symbol by a predetermined sequence. Nowhere in these lines does Schmidl suggest that even data from among the second preamble sequence corresponds to null data and odd data from among the second preamble sequence corresponds to data.

This interpretation of Schmidl is incorrect. The use of only even subcarriers for data as disclosed by Schmidl and no carriers for odd data corresponds to null data on the odd data. There is not patentably distinct difference between using a zero and a null subcarrier.

4. The applicant further contends:

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The Examiner relies on paragraph 6, lines 1-9, of Meehan to satisfy the deficiencies of Schmidl. Meehan describes, in paragraph 6, the operation of processing a first predetermined portion of the preamble information with a first antenna to produce a first preamble sequence, and processing a second predetermined portion of the preamble information is processed to produce a second preamble sequence. The operation is clearly different from the operation recited in Claims 1, 4, 7, 10, 13 and 16.

Meehan nowhere suggests generating a first preamble sequence in which odd data of the preamble sequence becomes null data and even data of the preamble sequence becomes data, the first preamble sequence being adapted to be transmitted via one of the at least two antennas, and generating a second preamble sequence in which the even data of the preamble sequence becomes null data and the odd data of the preamble sequence becomes data.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4, 7, 10, 13, and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidl et al. (U.S. Patent No. 5,732,113) in view of Meehan et al. (U.S. Pub. No. 2003/0119468).

**Claims 1, 10, Schmidl discloses:**

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- a first preamble sequence in which odd data of the preamble sequence becomes null data and even data of the preamble sequence becomes data (abstract, lines 6-8)
- a second preamble sequence in which the even data of the preamble sequence becomes null data and the odd data of the preamble sequence becomes data (abstract, lines 9-12)

Schmidl fails to disclose:

- generating a first preamble sequence being adapted to be transmitted via one of the at least two antennas
- generating a second preamble sequence being adapted to be transmitted via another one of the at least two antennas

However, Meehan discloses:

- generating a first preamble sequence being adapted to be transmitted via one of the at least two antennas ([0006], lines 4-6)
- generating a second preamble sequence being adapted to be transmitted via another one of the at least two antennas ([0006], lines 7-9)

Because Meehan discloses this method has the advantage of enhancing signal reception ([0006], lines 1-3), it would have been obvious to one skilled in the art at the time of invention to incorporate the preamble sequence generating and transmission method as disclosed by Meehan into the invention of Schmidl.

**Claims 4, 13,** Schmidl discloses:

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- a first preamble sequence in which odd data of the preamble sequence becomes null data and even data of the preamble sequence becomes data, for one OFDM symbol period (abstract, lines 4-8, col. 8, lines 49-52)
- a second preamble sequence in which the even data of the preamble sequence becomes null data and the odd data of the preamble sequence becomes data, for a next OFDM symbol period after passage of the one OFDM symbol period (abstract, lines 4-6, 9-12, lines 52-55)

Schmidl fails to disclose generating first and second preamble sequences, however, Meehan discloses generating first and second preamble sequences ([0006], lines 4-9) Because Meehan discloses this method has the advantage of enhancing signal reception ([0006], lines 1-3), it would have been obvious to one skilled in the art at the time of invention to incorporate the preamble sequence generating and transmission method as disclosed by Meehan into the invention of Schmidl.

**Claim 7**, Schmidl discloses:

- a first preamble sequence in which odd data of the preamble sequence becomes null data and even data of the preamble sequence becomes data, for one OFDM symbol period (abstract, lines 4-8)
- a second preamble sequence in which the even data of the preamble sequence becomes null data and the odd data of the preamble sequence becomes data, for a next OFDM symbol period after passage of the one OFDM symbol period (abstract, lines 4-6, 9-12)

Schmidl fails to disclose:

- generating a first preamble sequence being adapted to be transmitted via one of the at least two antennas
- generating a second preamble sequence being adapted to be transmitted via another one of the at least two antennas

However, Meehan discloses:

- generating a first preamble sequence being adapted to be transmitted via one of the at least two antennas ([0006], lines 4-6)
- generating a second preamble sequence being adapted to be transmitted via another one of the at least two antennas ([0006], lines 7-9)

Because Meehan discloses this method has the advantage of enhancing signal reception ([0006], lines 1-3), it would have been obvious to one skilled in the art at the time of invention to incorporate the preamble sequence generating and transmission method as disclosed by Meehan into the invention of Schmidl.

Schmidl further discloses it would be obvious to one skilled in the art that the exchange of the roles of even and odd results in no substantial differences in the function of the present invention (col. 8, lines 52-55). Therefore Schmidl teaches modifying the preamble sequence generation as described above, to further perform the first and second preamble sequence generation in the same manner changing the first preamble sequence to transmit null data on the odd data, and changing the second preamble sequence to transmit null data on the even data.

**Claim 16**, Schmidl discloses:

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- a first preamble sequence in which odd data of the preamble sequence becomes null data and even data of the preamble sequence becomes data, for one OFDM symbol period (abstract, lines 4-8)
- a second preamble sequence in which the even data of the preamble sequence becomes null data and the odd data of the preamble sequence becomes data, for a next OFDM symbol period after passage of the one OFDM symbol period (abstract, lines 4-6, 9-12)

Schmidl fails to disclose:

- generating a first preamble sequence being adapted to be transmitted via one of the at least two antennas
- generating a second preamble sequence being adapted to be transmitted via another one of the at least two antennas

However, Meehan discloses:

- generating a first preamble sequence being adapted to be transmitted via one of the at least two antennas ([0006], lines 4-6)
- generating a second preamble sequence being adapted to be transmitted via another one of the at least two antennas ([0006], lines 7-9)

Because Meehan discloses this method has the advantage of enhancing signal reception ([0006], lines 1-3), it would have been obvious to one skilled in the art at the time of invention to incorporate the preamble sequence generating and transmission method as disclosed by Meehan into the invention of Schmidl.



***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

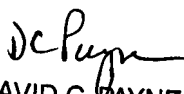
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is 5712726040. The examiner can normally be reached on M-F 1-9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 5712723024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erin M. File/  
Assistant Examiner, AU 2611  
6/27/2007

  
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SUPERVISORY PATENT EXAMINER